



SEQUENCE LISTING

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<110> Summar, Marshall
        Christman, Brian
<120> THERAPEUTIC METHODS RELATING TO CARBAMYL PHOSPHATE SYNTHETASE I
        POLYMORPHISM
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Ser Gly Asp	Ala Thr Leu Met Leu	Pro Thr Gln Thr Ile	Ser Gln	
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Val Ala Thr	Lys Val Met Ile Gly	Glu Asn Val Asp Glu	Lys His	
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Leu Pro Thr	Leu Asp His Pro Ile	Ile Pro Ala Asp Tyr	Val Ala	
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Arg	Pro	Gly	Ile	Arg	Leu	Leu	Ser	Val	Lys	Ala	Gln	Thr	Ala	His	Ile	35	40	45	
Val	Leu	Glu	Asp	Gly	Thr	Lys	Met	Lys	Gly	Tyr	Ser	Phe	Gly	His	Pro	50	55	60	
Ser	Ser	Val	Ala	Gly	Glu	Val	Val	Phe	Asn	Thr	Gly	Leu	Gly	Gly	Tyr	65	70	75	80
Pro	Glu	Ala	Ile	Thr	Asp	Pro	Ala	Tyr	Lys	Gly	Gln	Ile	Leu	Thr	Met	85	90	95	
Ala	Asn	Pro	Ile	Ile	Gly	Asn	Gly	Gly	Ala	Pro	Asp	Thr	Thr	Ala	Leu	100	105	110	
Asp	Glu	Leu	Gly	Leu	Ser	Lys	Tyr	Leu	Glu	Ser	Asn	Gly	Ile	Lys	Val	115	120	125	
Ser	Gly	Leu	Leu	Val	Leu	Asp	Tyr	Ser	Lys	Asp	Tyr	Asn	His	Trp	Leu	130	135	140	
Ala	Thr	Lys	Ser	Leu	Gly	Gln	Trp	Leu	Gln	Glu	Glu	Lys	Val	Pro	Ala	145	150	155	160

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 Cys Gly Ile Lys Asn Asn Val Ile Arg Leu Leu Val Lys Arg Gly Ala
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 Asp Gly Ile Leu Ile Ala Gly Gly Pro Gly Asn Pro Ala Leu Ala Glu
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 Pro Leu Phe Gly Ile Ser Thr Gly Asn Leu Ile Thr Gly Leu Ala Ala
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 370 375 380
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Asp Ser Gly	Ile Pro Leu	Leu Thr	Asn Phe Gln	Val Thr	Lys Leu	
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Phe Ala Glu	Ala Val Gln	Lys Ser	Arg Lys Val	Asp Ser	Lys Ser	
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Leu Phe His	Tyr Arg Gln	Tyr Ser	Ala Gly Lys	Ala Ala		
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gttatgcctt	aatattctgt	gtcttttgca	attaaattgt	cagtcacttc	ttcaaaacct	4806

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Ser	Ser	Val	Ala	Gly	Glu	Val	Val	Phe	Asn	Thr	Gly	Leu	Gly	Gly	Tyr
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Pro	Glu	Ala	Ile	Thr	Asp	Pro	Ala	Tyr	Lys	Gly	Gln	Ile	Leu	Thr	Met
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Cys	Gly	Ile	Lys	Asn	Asn	Val	Ile	Arg	Leu	Leu	Val	Lys	Arg	Gly	Ala	
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 Ile Ser Val Gly Gly Gln Ile Pro Asn Asn Leu Ala Val Pro Leu
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Leu	Lys	Val	Ala	Gln	Ala	Pro	Trp	Lys	Ala	Val	Asn	Thr	Leu	Asn
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Ser	His	Ala	Ile	Ser	Glu	His	Val	Glu	Asp	Ala	Gly	Val	His	Ser
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Ala	Ile	Glu	Lys	Val	Lys	Asp	Ala	Thr	Arg	Lys	Ile	Ala	Lys	Ala
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Phe	Ala	Ile	Ser	Gly	Pro	Phe	Asn	Val	Gln	Phe	Leu	Val	Lys	Gly
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1325						1330					1335			
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Lys	Phe	Val	His	Asp	Asn	Tyr	Val	Ile	Arg	Arg	Thr	Ala	Val	Asp
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Ala	Glu	Ala	Val	Gln	Lys	Ser	Arg	Lys	Val	Asp	Ser	Lys	Ser	Leu
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aaa atg acg agg tta ttg aca gct ttc aaa gtg gtg agg aca ctg aag 168
Met Thr Arg Leu Leu Thr Ala Phe Lys Val Val Arg Thr Leu Lys
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Thr Gly Phe Gly Phe Thr Asn Val Thr Ala His Gln Lys Trp Lys Phe
20 25 30
tca aga cct ggc atc agg ctc ctt tct gtc aag gca cag aca gca cac 264
Ser Arg Pro Gly Ile Arg Leu Leu Ser Val Lys Ala Gln Thr Ala His
35 40 45
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Ile Val Leu Glu Asp Gly Thr Lys Met Lys Gly Tyr Ser Phe Gly His
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aag tca gtg aca ggt tgg aaa gaa ata gaa tat gaa gtg gtt cga gat Lys Ser Val Thr Gly Trp Lys Glu Ile Glu Tyr Glu Val Val Arg Asp 625 630 635	2040
gct gat gac aat tgt gtc act gtc tgt aac atg gaa aat gtt gat gcc Ala Asp Asp Asn Cys Val Thr Val Cys Asn Met Glu Asn Val Asp Ala 640 645 650 655	2088
atg ggt gtt cac aca ggt gac tca gtt gtt gtg gct cct gcc cag aca Met Gly Val His Thr Gly Asp Ser Val Val Ala Pro Ala Gln Thr 660 665 670	2136
ctc tcc aat gcc gag ttt cag atg ttg aga cgt act tca atc aat gtt Leu Ser Asn Ala Glu Phe Gln Met Leu Arg Arg Thr Ser Ile Asn Val 675 680 685	2184
gtt cgc cac ttg ggc att gtg ggt gaa tgc aac att cag ttt gcc ctt Val Arg His Leu Gly Ile Val Gly Glu Cys Asn Ile Gln Phe Ala Leu 690 695 700	2232
cat cct acc tca atg gaa tac tgc atc att gaa gtg aat gcc aga ctg His Pro Thr Ser Met Glu Tyr Cys Ile Ile Glu Val Asn Ala Arg Leu 705 710 715	2280
tcc cga agc tct gct ctg gcc tca aaa gcc act ggc tac cca ttg gca Ser Arg Ser Ser Ala Leu Ala Ser Lys Ala Thr Gly Tyr Pro Leu Ala 720 725 730 735	2328
ttc att gct gca aag att gcc cta gga atc cca ctt cca gaa att aag Phe Ile Ala Ala Lys Ile Ala Leu Gly Ile Pro Leu Pro Glu Ile Lys 740 745 750	2376
aac gtc gta tcc ggg aag aca tca gcc tgt ttt gaa cct agc ctg gat Asn Val Val Ser Gly Lys Thr Ser Ala Cys Phe Glu Pro Ser Leu Asp 755 760 765	2424
tac atg gtc acc aag att ccc cgc tgg gat ctt gac cgt ttt cat gga Tyr Met Val Thr Lys Ile Pro Arg Trp Asp Leu Asp Arg Phe His Gly 770 775 780	2472

aca tct agc cga att ggt agc tct atg aaa agt gta gga gag gtc atg Thr Ser Ser Arg Ile Gly Ser Ser Met Lys Ser Val Gly Glu Val Met 785 790 795	2520
gct att ggt cgt acc ttt gag gag agt ttc cag aaa gct tta cgg atg Ala Ile Gly Arg Thr Phe Glu Glu Ser Phe Gln Lys Ala Leu Arg Met 800 805 810 815	2568
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gaa tgg cca tct aat tta gat ctt aga aaa gag ttg tct gaa cca agc Glu Trp Pro Ser Asn Leu Asp Leu Arg Lys Glu Leu Ser Glu Pro Ser 835 840 845	2664
agc acg cgt atc tat gcc att gcc aag gcc att gat gac aac atg tcc Ser Thr Arg Ile Tyr Ala Ile Ala Lys Ala Ile Asp Asp Asn Met Ser 850 855 860	2712
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agt gag tcc atg aca gaa gaa acc ctg aaa agg gca aag gag att ggg Ser Glu Ser Met Thr Glu Glu Thr Leu Lys Arg Ala Lys Glu Ile Gly 900 905 910	2856
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aca agg gag ctg agg tta aag aaa aac atc cac cct tgg gtt aaa cag Thr Arg Glu Leu Arg Leu Lys Lys Asn Ile His Pro Trp Val Lys Gln 930 935 940	2952
att gat aca ctg gct gca gaa tac cca tca gta aca aac tat ctc tat Ile Asp Thr Leu Ala Ala Glu Tyr Pro Ser Val Thr Asn Tyr Leu Tyr 945 950 955	3000
gtt acc tac aat ggt cag gag cat gat gtc aat ttt gat gac cat gga Val Thr Tyr Asn Gly Gln Glu His Asp Val Asn Phe Asp Asp His Gly 960 965 970 975	3048
atg atg gtg cta ggc tgt ggt cca tat cac att ggc agc agt gtg gaa Met Met Val Leu Gly Cys Gly Pro Tyr His Ile Gly Ser Ser Val Glu 980 985 990	3096
ttt gat tgg tgt gct gtc tct agt atc cgc aca ctg cgt caa ctt ggc Phe Asp Trp Cys Ala Val Ser Ser Ile Arg Thr Leu Arg Gln Leu Gly 995 1000 1005	3144
aag aag acg gtg gtg gtg aat tgc aat cct gag act gtg agc aca Lys Lys Thr Val Val Val Asn Cys Asn Pro Glu Thr Val Ser Thr 1010 1015 1020	3189

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Asp Phe Asp	Glu Cys Asp Lys Leu	Tyr Phe Glu Glu Leu	Ser Leu	
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Glu Arg Ile	Leu Asp Ile Tyr His	Gln Glu Ala Cys Gly	Gly Cys	
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Ile Ile Ser	Val Gly Gly Gln Ile	Pro Asn Asn Leu Ala	Val Pro	
1055	1060	1065		
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Leu Tyr Lys	Asn Gly Val Lys Ile	Met Gly Thr Ser Pro	Leu Gln	
1070	1075	1080		
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Ile Asp Arg	Ala Glu Asp Arg Ser	Ile Phe Ser Ala Val	Leu Asp	
1085	1090	1095		
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Glu Leu Lys	Val Ala Gln Ala Pro	Trp Lys Ala Val Asn	Thr Leu	
1100	1105	1110		
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Asn Glu Ala	Leu Glu Phe Ala Lys	Ser Val Asp Tyr Pro	Cys Leu	
1115	1120	1125		
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Leu Arg Pro	Ser Tyr Val Leu Ser	Gly Ser Ala Met Asn	Val Val	
1130	1135	1140		
ttc tct gag	gat gag atg aaa aaa	ttc cta gaa gag gcg	act aga	3594
Phe Ser Glu	Asp Glu Met Lys Lys	Phe Leu Glu Glu Ala	Thr Arg	
1145	1150	1155		
gtt tct cag	gag cac cca gtg gtc	ctg aca aaa ttt gtt	gaa ggg	3639
Val Ser Gln	Glu His Pro Val Val	Leu Thr Lys Phe Val	Glu Gly	
1160	1165	1170		
gcc cga gaa	gta gaa atg gac gct	gtt ggc aaa gat gga	agg gtt	3684
Ala Arg Glu	Val Glu Met Asp Ala	Val Gly Lys Asp Gly	Arg Val	
1175	1180	1185		
atc tct cat	gcc atc tct gaa cat	gtt gaa gat gca ggt	gtc cac	3729
Ile Ser His	Ala Ile Ser Glu His	Val Glu Asp Ala Gly	Val His	
1190	1195	1200		
tcg gga gat	gcc act ctg atg ctg	ccc aca caa acc atc	agc caa	3774
Ser Gly Asp	Ala Thr Leu Met Leu	Pro Thr Gln Thr Ile	Ser Gln	
1205	1210	1215		
ggg gcc att	gaa aag gtg aag gat	gct acc cgg aag att	gca aag	3819
Gly Ala Ile	Glu Lys Val Lys Asp	Ala Thr Arg Lys Ile	Ala Lys	
1220	1225	1230		
gct ttt gcc	atc tct ggt cca ttc	aac gtc caa ttt ctt	gtc aaa	3864
Ala Phe Ala	Ile Ser Gly Pro Phe	Asn Val Gln Phe Leu	Val Lys	
1235	1240	1245		

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Gly Asn Asp Val Leu Val Ile Glu Cys Asn Leu Arg Ala Ser Arg	
1250 1255 1260	
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Ser Phe Pro Phe Val Ser Lys Thr Leu Gly Val Asp Phe Ile Asp	
1265 1270 1275	
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Val Ala Thr Lys Val Met Ile Gly Glu Asn Val Asp Glu Lys His	
1280 1285 1290	
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Leu Pro Thr Leu Asp His Pro Ile Ile Pro Ala Asp Tyr Val Ala	
1295 1300 1305	
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Ile Lys Ala Pro Met Phe Ser Trp Pro Arg Leu Arg Asp Ala Asp	
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ccc att ctg aga tgt gag atg gct tcc act gga gag gtg gct tgc	4134
Pro Ile Leu Arg Cys Glu Met Ala Ser Thr Gly Glu Val Ala Cys	
1325 1330 1335	
ttt ggt gaa ggt att cat aca gcc ttc cta aag gca atg ctt tcc	4179
Phe Gly Glu Gly Ile His Thr Ala Phe Leu Lys Ala Met Leu Ser	
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Thr Gly Phe Lys Ile Pro Gln Lys Gly Ile Leu Ile Gly Ile Gln	
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Gln Ser Phe Arg Pro Arg Phe Leu Gly Val Ala Glu Gln Leu His	
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Asn Glu Gly Phe Lys Leu Phe Ala Thr Glu Ala Thr Ser Asp Trp	
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Gln Glu Gly Gln Asn Pro Ser Leu Ser Ser Ile Arg Lys Leu Ile	
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Thr Lys Phe Val His Asp Asn Tyr Val Ile Arg Arg Thr Ala Val	
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gat agt gga atc cct ctc ctc act aat ttt cag gtg acc aaa ctt	4539
Asp Ser Gly Ile Pro Leu Leu Thr Asn Phe Gln Val Thr Lys Leu	
1460 1465 1470	

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Phe Ala Glu Ala Val Gln Lys Ser Arg Lys Val Asp Ser Lys Ser	
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Leu Phe His Tyr Arg Gln Tyr Ser Ala Gly Lys Ala Ala	
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 <212> PRT
 <213> Homo sapiens
 <400> 12

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1 5 10 15	
Gly Phe Gly Phe Thr Asn Val Thr Ala His Gln Lys Trp Lys Phe Ser	
20 25 30	
Arg Pro Gly Ile Arg Leu Leu Ser Val Lys Ala Gln Thr Ala His Ile	
35 40 45	

Val	Leu	Glu	Asp	Gly	Thr	Lys	Met	Lys	Gly	Tyr	Ser	Phe	Gly	His	Pro	50	55	60	
Ser	Ser	Val	Ala	Gly	Glu	Val	Val	Phe	Asn	Thr	Gly	Leu	Gly	Gly	Tyr	65	70	75	80
Pro	Glu	Ala	Ile	Thr	Asp	Pro	Ala	Tyr	Lys	Gly	Gln	Ile	Leu	Thr	Met	85	90	95	
Ala	Asn	Pro	Ile	Ile	Gly	Asn	Gly	Gly	Ala	Pro	Asp	Thr	Thr	Ala	Leu	100	105	110	
Asp	Glu	Leu	Gly	Leu	Ser	Lys	Tyr	Leu	Glu	Ser	Asn	Gly	Ile	Lys	Val	115	120	125	
Ser	Gly	Leu	Leu	Val	Leu	Asp	Tyr	Ser	Lys	Asp	Tyr	Asn	His	Trp	Leu	130	135	140	
Ala	Thr	Lys	Ser	Leu	Gly	Gln	Trp	Leu	Gln	Glu	Glu	Lys	Val	Pro	Ala	145	150	155	160
Ile	Tyr	Gly	Val	Asp	Thr	Arg	Met	Leu	Thr	Lys	Ile	Ile	Arg	Asp	Lys	165	170	175	
Gly	Thr	Met	Leu	Gly	Lys	Ile	Glu	Phe	Glu	Gly	Gln	Pro	Val	Asp	Phe	180	185	190	
Val	Asp	Pro	Asn	Lys	Gln	Asn	Leu	Ile	Ala	Glu	Val	Ser	Thr	Lys	Asp	195	200	205	
Val	Lys	Val	Tyr	Gly	Lys	Gly	Asn	Pro	Thr	Lys	Val	Val	Ala	Val	Asp	210	215	220	
Cys	Gly	Ile	Lys	Asn	Asn	Val	Ile	Arg	Leu	Leu	Val	Lys	Arg	Gly	Ala	225	230	235	240
Glu	Val	His	Leu	Val	Pro	Trp	Asn	His	Asp	Phe	Thr	Lys	Met	Glu	Tyr	245	250	255	
Asp	Gly	Ile	Leu	Ile	Ala	Gly	Gly	Pro	Gly	Asn	Pro	Ala	Leu	Ala	Glu	260	265	270	
Pro	Leu	Ile	Gln	Asn	Val	Arg	Lys	Ile	Leu	Glu	Ser	Asp	Arg	Lys	Glu	275	280	285	
Pro	Leu	Phe	Gly	Ile	Ser	Thr	Gly	Asn	Leu	Ile	Thr	Gly	Leu	Ala	Ala	290	295	300	
Gly	Ala	Lys	Thr	Tyr	Lys	Met	Ser	Met	Ala	Asn	Arg	Gly	Gln	Asn	Gln	305	310	315	320
Pro	Val	Leu	Asn	Ile	Thr	Asn	Lys	Gln	Ala	Phe	Ile	Thr	Ala	Gln	Asn	325	330	335	
His	Gly	Tyr	Ala	Leu	Asp	Asn	Thr	Leu	Pro	Ala	Gly	Trp	Lys	Pro	Leu	340	345	350	
Phe	Val	Asn	Val	Asn	Asp	Gln	Thr	Asn	Glu	Gly	Ile	Met	His	Glu	Ser	355	360	365	
Lys	Pro	Phe	Phe	Ala	Val	Gln	Phe	His	Pro	Glu	Val	Thr	Pro	Gly	Pro	370	375	380	

Ile	Asp	Thr	Glu	Tyr	Leu	Phe	Asp	Ser	Phe	Phe	Ser	Leu	Ile	Lys	Lys	385	390	395	400
Gly	Lys	Ala	Thr	Thr	Ile	Thr	Ser	Val	Leu	Pro	Lys	Pro	Ala	Leu	Val	405	410	415	
Ala	Ser	Arg	Val	Glu	Val	Ser	Lys	Val	Leu	Ile	Leu	Gly	Ser	Gly	Gly	420	425	430	
Leu	Ser	Ile	Gly	Gln	Ala	Gly	Glu	Phe	Asp	Tyr	Ser	Gly	Ser	Gln	Ala	435	440	445	
Val	Lys	Ala	Met	Lys	Glu	Glu	Asn	Val	Lys	Thr	Val	Leu	Met	Asn	Pro	450	455	460	
Asn	Ile	Ala	Ser	Val	Gln	Thr	Asn	Glu	Val	Gly	Leu	Lys	Gln	Ala	Asp	465	470	475	480
Thr	Val	Tyr	Phe	Leu	Pro	Ile	Thr	Pro	Gln	Phe	Val	Thr	Glu	Val	Ile	485	490	495	
Lys	Ala	Glu	Gln	Pro	Asp	Gly	Leu	Ile	Leu	Gly	Met	Gly	Gly	Gln	Thr	500	505	510	
Ala	Leu	Asn	Cys	Gly	Val	Glu	Leu	Phe	Lys	Arg	Gly	Val	Leu	Lys	Glu	515	520	525	
Tyr	Gly	Val	Lys	Val	Leu	Gly	Thr	Ser	Val	Glu	Ser	Ile	Met	Ala	Thr	530	535	540	
Glu	Asp	Arg	Gln	Leu	Phe	Ser	Asp	Lys	Leu	Asn	Glu	Ile	Asn	Glu	Lys	545	550	555	560
Ile	Ala	Pro	Ser	Phe	Ala	Val	Glu	Ser	Ile	Glu	Asp	Ala	Leu	Lys	Ala	565	570	575	
Ala	Asp	Thr	Ile	Gly	Tyr	Pro	Val	Met	Ile	Arg	Ser	Ala	Tyr	Ala	Leu	580	585	590	
Gly	Gly	Leu	Gly	Ser	Gly	Ile	Cys	Pro	Asn	Arg	Glu	Thr	Leu	Met	Asp	595	600	605	
Leu	Ser	Thr	Lys	Ala	Phe	Ala	Met	Thr	Asn	Gln	Ile	Leu	Val	Glu	Lys	610	615	620	
Ser	Val	Thr	Gly	Trp	Lys	Glu	Ile	Glu	Tyr	Glu	Val	Val	Arg	Asp	Ala	625	630	635	640
Asp	Asp	Asn	Cys	Val	Thr	Val	Cys	Asn	Met	Glu	Asn	Val	Asp	Ala	Met	645	650	655	
Gly	Val	His	Thr	Gly	Asp	Ser	Val	Val	Val	Ala	Pro	Ala	Gln	Thr	Leu	660	665	670	
Ser	Asn	Ala	Glu	Phe	Gln	Met	Leu	Arg	Arg	Thr	Ser	Ile	Asn	Val	Val	675	680	685	
Arg	His	Leu	Gly	Ile	Val	Gly	Glu	Cys	Asn	Ile	Gln	Phe	Ala	Leu	His	690	695	700	

Pro Thr Ser Met Glu Tyr Cys Ile Ile Glu Val Asn Ala Arg Leu Ser
 705 710 715 720
 Arg Ser Ser Ala Leu Ala Ser Lys Ala Thr Gly Tyr Pro Leu Ala Phe
 725 730 735
 Ile Ala Ala Lys Ile Ala Leu Gly Ile Pro Leu Pro Glu Ile Lys Asn
 740 745 750
 Val Val Ser Gly Lys Thr Ser Ala Cys Phe Glu Pro Ser Leu Asp Tyr
 755 760 765
 Met Val Thr Lys Ile Pro Arg Trp Asp Leu Asp Arg Phe His Gly Thr
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 Ile Gly Arg Thr Phe Glu Glu Ser Phe Gln Lys Ala Leu Arg Met Cys
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 His Pro Ser Ile Glu Gly Phe Thr Pro Arg Leu Pro Met Asn Lys Glu
 820 825 830
 Trp Pro Ser Asn Leu Asp Leu Arg Lys Glu Leu Ser Glu Pro Ser Ser
 835 840 845
 Thr Arg Ile Tyr Ala Ile Ala Lys Ala Ile Asp Asp Asn Met Ser Leu
 850 855 860
 Asp Glu Ile Glu Lys Leu Thr Tyr Ile Asp Lys Trp Phe Leu Tyr Lys
 865 870 875 880
 Met Arg Asp Ile Leu Asn Met Glu Lys Thr Leu Lys Gly Leu Asn Ser
 885 890 895
 Glu Ser Met Thr Glu Glu Thr Leu Lys Arg Ala Lys Glu Ile Gly Phe
 900 905 910
 Ser Asp Lys Gln Ile Ser Lys Cys Leu Gly Leu Thr Glu Ala Gln Thr
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 Arg Glu Leu Arg Leu Lys Lys Asn Ile His Pro Trp Val Lys Gln Ile
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 Asp Thr Leu Ala Ala Glu Tyr Pro Ser Val Thr Asn Tyr Leu Tyr Val
 945 950 955 960
 Thr Tyr Asn Gly Gln Glu His Asp Val Asn Phe Asp Asp His Gly Met
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 Met Val Leu Gly Cys Gly Pro Tyr His Ile Gly Ser Ser Val Glu Phe
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 Asp Trp Cys Ala Val Ser Ser Ile Arg Thr Leu Arg Gln Leu Gly Lys
 995 1000 1005
 Lys Thr Val Val Val Asn Cys Asn Pro Glu Thr Val Ser Thr Asp
 1010 1015 1020

Phe	Asp	Glu	Cys	Asp	Lys	Leu	Tyr	Phe	Glu	Glu	Leu	Ser	Leu	Glu
1025						1030					1035			
Arg	Ile	Leu	Asp	Ile	Tyr	His	Gln	Glu	Ala	Cys	Gly	Gly	Cys	Ile
1040						1045					1050			
Ile	Ser	Val	Gly	Gly	Gln	Ile	Pro	Asn	Asn	Leu	Ala	Val	Pro	Leu
1055						1060					1065			
Tyr	Lys	Asn	Gly	Val	Lys	Ile	Met	Gly	Thr	Ser	Pro	Leu	Gln	Ile
1070						1075					1080			
Asp	Arg	Ala	Glu	Asp	Arg	Ser	Ile	Phe	Ser	Ala	Val	Leu	Asp	Glu
1085						1090					1095			
Leu	Lys	Val	Ala	Gln	Ala	Pro	Trp	Lys	Ala	Val	Asn	Thr	Leu	Asn
1100						1105					1110			
Glu	Ala	Leu	Glu	Phe	Ala	Lys	Ser	Val	Asp	Tyr	Pro	Cys	Leu	Leu
1115						1120					1125			
Arg	Pro	Ser	Tyr	Val	Leu	Ser	Gly	Ser	Ala	Met	Asn	Val	Val	Phe
1130						1135					1140			
Ser	Glu	Asp	Glu	Met	Lys	Lys	Phe	Leu	Glu	Glu	Ala	Thr	Arg	Val
1145						1150					1155			
Ser	Gln	Glu	His	Pro	Val	Val	Leu	Thr	Lys	Phe	Val	Glu	Gly	Ala
1160						1165					1170			
Arg	Glu	Val	Glu	Met	Asp	Ala	Val	Gly	Lys	Asp	Gly	Arg	Val	Ile
1175						1180					1185			
Ser	His	Ala	Ile	Ser	Glu	His	Val	Glu	Asp	Ala	Gly	Val	His	Ser
1190						1195					1200			
Gly	Asp	Ala	Thr	Leu	Met	Leu	Pro	Thr	Gln	Thr	Ile	Ser	Gln	Gly
1205						1210					1215			
Ala	Ile	Glu	Lys	Val	Lys	Asp	Ala	Thr	Arg	Lys	Ile	Ala	Lys	Ala
1220						1225					1230			
Phe	Ala	Ile	Ser	Gly	Pro	Phe	Asn	Val	Gln	Phe	Leu	Val	Lys	Gly
1235						1240					1245			
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1250						1255					1260			
Phe	Pro	Phe	Val	Ser	Lys	Thr	Leu	Gly	Val	Asp	Phe	Ile	Asp	Val
1265						1270					1275			
Ala	Thr	Lys	Val	Met	Ile	Gly	Glu	Asn	Val	Asp	Glu	Lys	His	Leu
1280						1285					1290			
Pro	Thr	Leu	Asp	His	Pro	Ile	Ile	Pro	Ala	Asp	Tyr	Val	Ala	Ile
1295						1300					1305			
Lys	Ala	Pro	Met	Phe	Ser	Trp	Pro	Arg	Leu	Arg	Asp	Ala	Asp	Pro
1310						1315					1320			

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Leu Ser Ile Gly Gln Ala Gly Glu Phe Asp Tyr Ser Gly Ser Gln Ala
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Val Lys Ala Met Lys Glu Glu Asn Val Lys Thr Val Leu Met Asn Pro
450 455 460
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Thr Val Tyr Phe Leu Pro Ile Thr Pro Gln Phe Val Thr Glu Val Ile
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Lys Ala Glu Gln Pro Asp Gly Leu Ile Leu Gly Met Gly Gly Gln Thr
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Ala Leu Asn Cys Gly Val Glu Leu Phe Lys Arg Gly Val Leu Lys Glu
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Tyr Gly Val Lys Val Leu Gly Thr Ser Val Glu Ser Ile Met Ala Thr
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Glu Asp Arg Gln Leu Phe Ser Asp Lys Leu Asn Glu Ile Asn Glu Lys
545 550 555 560
Ile Ala Pro Ser Phe Ala Val Glu Ser Ile Glu Asp Ala Leu Lys Ala
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Ala Asp Thr Ile Gly Tyr Pro Val Met Ile Arg Ser Ala Tyr Ala Leu
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Gly Gly Leu Gly Ser Gly Ile Cys Pro Asn Arg Glu Thr Leu Met Asp
595 600 605
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Ser Val Thr Gly Trp Lys Glu Ile Glu Tyr Glu Val Val Arg Asp Ala
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645 650 655
Gly Val His Thr Gly Asp Ser Val Val Val Ala Pro Ala Gln Thr Leu
660 665 670

Ser Asn Ala Glu Phe Gln Met Leu Arg Arg Thr Ser Ile Asn Val Val
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 Pro Thr Ser Met Glu Tyr Cys Ile Ile Glu Val Asn Ala Arg Leu Ser
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 Met Val Thr Lys Ile Pro Arg Trp Asp Leu Asp Arg Phe His Gly Thr
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 Thr Tyr Asn Gly Gln Glu His Asp Val Asn Phe Asp Asp His Gly Met
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 Met Val Leu Gly Cys Gly Pro Tyr His Ile Gly Ser Ser Val Glu Phe
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Asp Trp Cys Ala Val Ser Ser Ile Arg Thr Leu Arg Gln Leu Gly Lys
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Gly Glu Gly Ile His Thr Ala Phe Leu Lys Ala Met Leu Ser Thr
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Gly Phe Lys Ile Pro Gln Lys Gly Ile Leu Ile Gly Ile Gln Gln
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Glu Gly Phe Lys Leu Phe Ala Thr Glu Ala Thr Ser Asp Trp Leu
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Asn Ala Asn Asn Val Pro Ala Asn Pro Val Ala Trp Pro Ser Gln
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Lys Phe Val His Asp Asn Tyr Val Ile Arg Arg Thr Ala Val Asp
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Pro Val Xaa Trp Pro Xaa Xaa Glu
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